Preparing For DCO
Equipment and Facility Considerations

I. Equipment considerations

Equipment purchases should be prioritized for those items that will either increase efficiency or fill shortages that will occur once the clinic becomes more productive. Items to consider for purchase include the following.

1. Essential equipment items - fill shortages
   - Instruments
   - Instrument cassettes
   - Handpieces (high/low/surgical) and quick-connect adaptors
   - Amalgamators
   - Light curing units
   - Radiograph viewboxes
   - Ultrasonic scalers and insert tips
   - Dental units/chairs if reactivating a nonfunctional DTR

2. Some equipment items are not needed in every DTR, but adequate numbers should be available so that they can be shared between a limited number of DTRs. Examples:
   - Pulp testers
   - Apex locators
   - "Lead" aprons and apron hangers
   - XCP film holders
   - Alginate impression trays
   - Impression guns
   - Special luting agents & other infrequently used materials
   - Small refrigerator to store materials
   - Automated blood pressure unit

3. X-ray tubeheads for placement in DTRs.
   - See item 5 in the "Facilities" section below.

4. Other items to consider:
   - Periapical radiograph processor with daylight loader
     -- For larger clinics where some DTRs are distant from the central darkroom and there is space available near these DTRs to locate the processor.
   - Wall or cabinet mounted arms for computer monitor/keyboard
     -- See item 6 of the "Facilities" section below.
   - Devices to lubricate multiple handpieces simultaneously
     -- Examples include the Kavo QUATTROcare and NSK Care 3
   - Dental unit arm-mounted shelf for ultrasonic units
   - Remember to consider any installation costs and who will pay for this

5. Digital radiology
   - USAF dental clinics will convert to digital radiology in the future using other funding mechanisms; DCO funds are not meant to be used for this purpose.

II. Facility considerations

The floor plan and equipment availability in a dental facility can affect the efficiency with which Dental Care Optimization can operate. Regarding floor plans, some existing USAF dental structures will facilitate conversion to DCO fairly easily while other structures will be more challenging to work with. For the most part, major facility modifications are not going to be financially possible. The idea is to utilize existing space as effectively as possible. The following paragraphs will describe "ideal" facility concepts. While very few clinics will be able to incorporate all the concepts, and many will lack significant space resources, having a concept of the "ideal" will help when making decisions on how to best utilize existing spaces.

Here are some suggestions.

1. Obtain a copy of your clinic's floor plan.
Typically your facility manager or Civil Engineering can provide this. Seeing the floor plan on paper helps visualize the "big picture" and helps when deciding where to locate various functions.

2. Start with the DTRs.
Using the DCO allocation of dentists, look for blocks of two DTRs for each dentist, with prophy rooms interspersed with the general dentistry DTRs. Interspersing (rather than centralizing) prophy rooms allows each general dentist to easily move between his/her DTR and a prophy DTR to perform an exam and allows for easier coordination of the team's empanelled patients. DTR setup should be standardized (i.e. dental materials, equipment, and common use items should be kept in the same place in all general dentistry DTRs, the same for prophy DTRs, etc). If DTR availability permits, it is beneficial to have a dedicated DTR for surgery, even if no surgery specialist is assigned.

3. Office space.
While assigning DTRs to the treatment teams, look at what office space is available. Ideally, there should be admin space available in the immediate area of the DTRs for the dentist as well as the techs supporting that dentist. Here is an example illustrating the "ideal" needs of two general dentists. The two dentists would each work out of two DTRs (total 4 DTRs). Prophy DTRs will be interspersed among the general dentistry DTRs and for this illustration we will assume that a prophy DTR is adjacent to each of the two general dentists. We now have a group of six DTRs with two general dentists, four chairside assistants, one treatment coordinator, and two prophy techs. If two admin offices are available nearby, the two dentists could share one office and the staff supporting those two dentists could share the other office (used for scheduling issues and other support). This example is not to imply a recommendation to form teams of two dentists each, but serves to illustrate the concept of space utilization. Many facilities will not have ideal numbers of DTRs or admin offices and compromises will have to be made, but having the "ideal" situation in mind helps when deciding what compromises to make.

4. Instrument processing center and support rooms.
In a small clinic a centrally located instrument processing center including an area/room for clean instruments/materials storage can serve all the DTRs. As clinics become larger and DTRs become more distant from the instrument processing center, it is advantageous to have small "DTR support rooms" where clean instruments and centralized materials can be located in support of those DTRs distant from the central instrument storage room (note: these decentralized support rooms are not meant for instrument decontamination or processing). Other items that could be placed in these support rooms include lead aprons for use in the DTRs and a small refrigerator for dental materials. If the clinic utilizes digital radiography, sensors or a phosphor plate scanner could be placed in the support room. If conventional radiology is used, a self-contained periapical film processor could save steps to the central darkroom. If a second small "support room" space is available in a large clinic, it could be utilized as a dirty instrument drop-off area where dirty instruments could be collected for transport to the central instrument processing center (again, primarily for DTRs distant from the central instrument processing center).

5. X-ray.
To minimize escorting patients to a central x-ray room, consideration should be given to adding x-ray heads in the DTRs. An ideal configuration would place an intraoral x-ray head in each prophy/exam room and one head per every two DTRs occupied by dentists. While in most situations typical gypsum wallboard construction will provide adequate shielding, facilities should consult with their local bioenvironmental engineers regarding shielding requirements prior to purchasing x-ray heads for DTRs. It is probably a good idea to purchase a unit with a direct current tube (ex: Gendex 765DC approx $2650/head, Planmeca Intra, DentalEZ HDX) as these units have some advantages at the low exposure times associated with digital radiology. Make sure you consider the installation cost in your total estimate. This will include mounting costs as well as the cost of adding additional electric circuits (a dedicated circuit should supply each unit). Work with your facility manager to obtain these installation cost estimates. Pass-through cabinets are an option when sharing an x-ray head between two DTRs. Various manufacturers, including A-Dec, offer pass-through x-ray cabinets and usually the lead-lined option should be ordered for the cabinet doors. Before going this route, compare the cost of a cabinet, installation of the cabinet, and one x-ray head versus the cost of two x-ray heads. Also, x-ray units may be ordered with differing arm lengths, so be sure to measure the distance from the mounting location to the head of the chair and order the appropriate length arm.

6. Computer placement in DTRs.
Placement of computers in DTRs in conjunction with the deployment of CDA will help scheduling efficiency as patients may now be scheduled chairside for their next appointment. As computers are integrated into the DTR, the issue of where to locate them needs to be addressed. As time goes on, these computers will eventually be used for digital patient records and digital radiographs. The computer monitor (preferably flat panel) and keyboard/mouse should be readily available to both the dentist and assistant. If the existing DTR footprint will allow it, the optimum placement for the monitor and keyboard is on the back wall, directly behind the patient at the 12 o'clock position between the dentist and technician. This allows both the dentist and technician to have easy access for data entry and places the monitor in an accessible location for viewing radiographs, etc. The footprint of many existing DTRs will not

allow a 12 o'clock location due to inadequate space or many are configured with the entryway at the 12 o'clock position. If the 12 o'clock position is not possible, a second choice is to place the unit on the lateral wall, up toward the head of the patient, typically on the dentist's side. Avoid placing the monitor/keyboard on the countertop at the foot of the patient if possible as this location is least convenient for viewing patient information during treatment. Some clinics are configured such that the monitor and keyboard may be placed on existing countertops, while other clinics may benefit from the purchase of wall or cabinet mounted monitor/keyboard arms such as those sold by Ergotron and ICW (example: ICW model UL390TSQ1-0-3-2 / $355). The question is sometimes raised concerning placement of the monitor on an arm on the patient chair. Typically when a monitor is placed on the patient chair it is used as a supplemental monitor (without a keyboard) and it is used in addition to a primary monitor/keyboard located as previously described. The primary monitor/keyboard behind the patient is used for patient records, radiographs, scheduling and items that the patient would not normally be viewing and the supplemental monitor on the chair is used for patient education. Clinics should concentrate on placement of the primary monitor/keyboard. Use of a supplemental, chair-mounted monitor is purely optional (and requires a wiring conduit between the CPU and the floor box).

7. Phone systems

Additional phone lines / voice mail to the DTRs or team office area may be considered to streamline the ability of empanelled patients to call their team directly, without going through a central desk or routing system.

8. DTR renovations

If consideration is being given to converting existing space to one or more new DTRs (or renovating existing DTRs), contact the USAF Dental Investigation Service for help with DTR layout and in selecting cabinetry, patient chairs/delivery units, treatment lights, etc.

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